Application No. 10/709,960
Docket No. A4-1786
Amendment dated February 16, 2005
Reply to Office Action of November 4, 2004

Amendments to the Specification:

Please replace paragraph [0024] with the following amended paragraph:

[0024]   Another alternative for payload design is to use a conventional electromagnet in the form of <u>one or more coils</u> ~~a coil 10~~ of an electrically-conductive material. Electric energy can be stored and possibly harvested en route by solar cells until contact is made with the ID apparatus 22. The charge would be driven through the <u>coils,</u> ~~coil 10,~~ generating a momentary magnetic field that provides greater stopping power for a given magnetic field. This method would require communications and a more expensive payload 14 than merely iron, but could be operated at higher speeds, which may be desirable under certain conditions.

Please replace paragraph [0035] with the following amended paragraph:

[0035]   With further reference to Figures 7 through 11, magnetic fields placed along a curved path can be employed to modify the velocity vector of the payload 14, for example, to deflect a payload

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launched from the Moon into a geosynchronous orbit as represented

by Figure 9. The principles of such a velocity modification are

represented in Figure 7, which shows an apparatus 40 comprising a

first coil 10 generating a magnetic field at an approximately right angle

to the incoming trajectory 12 of the payload 14. With this

configuration, the trajectory 12 of the payload 14 can be bent or

turned to a more desirable direction. The payload 14 passes across

the opening 20 of the first coil 10, oriented so that its magnetic field

pulls the payload 14 toward the coil 10 so as to change the trajectory

12 of the payload 14. Anticipating this effect, a second coil 10 is

favorably positioned so that it further bends the payload trajectory 12.

By using a sufficiently large individual coil 10 or an appropriate

number of smaller coils 10, an incoming payload 14 can be shifted

through a turn of any desired amount. As evident from Figure 7, the

axes of the coils 10 are aligned as radii of a circle, the trajectory 12

lies along the radially-outward ends of the coils 10, and the magnetic

fields of the coils 10 pull the payload 14 toward the coils 10.

Alternatively, the trajectory 12 could lie along the radially-inward side

of the coils 10, such that the magnetic fields cooperate to push the

payload 14 away from the coils 10. ~~For example,~~ Figure 8

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represents deflecting a payload 14 through a rotation to not only align

the payload 14 with a desired orbit, but to also draw kinetic energy

from the payload 14 and thereby reduce its speed. Instead of being

aligned in a circular arrangement, the axes of the coils 10 could be

aligned as radii of a spiral. Such a configuration is represented in

Figure 8, which shows the payload trajectory 12 as being bent

through 450 degrees with six coils 10. It is foreseeable that any

number of coils 10 could be employed to bend the trajectory of a

payload through essentially any curvilinear path.

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